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16. Abstract <p style="text-align: justify;">Many construction projects involve the need to pump turbid water from borrow pits or other excavations into stilling basins or sediment bags prior to discharge. The design and operation of these basins needs to be optimized to provide the best water treatment prior to discharge. This project was designed to provide an evaluation of stilling basin designs and polyacrylamide (PAM) injection to minimize turbidity in discharged water. Of particular interest were difficult to settle Coastal Plain sediments containing highly charged clays (smectite/montmorillonite). The use of stilling basins did not result in significant reductions in turbidity in water pumped from the simulated borrow pits in these types of soils. These were not flocculated significantly by anionic PAM but can be flocculated by neutral or cationic PAM. In field tests, the flocculation process reduced turbidity regardless of the inclusion of either porous coir or rock baffles. However, at least one baffle is recommended when PAM is being used in case floating flocs are formed. Turbidity was reduced from the 500-800 NTU range to < 30 NTU in many cases, especially for the cationic PAM. Similar reductions were achieved using a sediment bag. Toxicity tests indicate the relative PAM toxicity was cationic > anionic > neutral, and was not affected by turbidity. The neutral PAM was almost as effective as the cationic PAM and was even less toxic than the anionic PAM, so it may be an alternative where the anionic PAMs that are available will not work.</p>			
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